

ASX Announcement

2 November 2017



Lanka Graphite Presentation – 2017

International Conference on Functional Carbons

Lanka Graphite Limited (ASX: LGR, “Lanka”, “the Company”) is pleased to provide a copy of the presentation to be delivered today, 2nd November 2017, by Managing Director Emily Lee at the 2017 International Conference on Functional Carbons in Taiwan.

Emily Lee, the Managing Director of Lanka Graphite commented, “Lanka Graphite is very pleased to be invited as a speaker at the International Conference on Functional Carbons. Lanka is committed to engaging high value end users in the graphite and graphene industry for advanced technological applications using our unique high purity Sri Lankan graphite”.

Dr W.H. Chiang, professor from NTUST and chair of the International Conference on Functional Carbons said, “He is pleased to have Lanka’s active involvement in collaboration with Graphene research institutions for developing economic Graphene and applications IP”.

About Lanka Graphite

Lanka Graphite Limited (ASX:LGR) is an ASX listed graphite exploration company that is focused on exploration of a number of historic and new mining tenements in Central and South Western Sri Lanka. Historic mining at a number of the granted tenements produced very high grade ‘lump’ or vein style graphite with grades >95%C. High purity vein graphite was historically produced from Lanka’s tenements at a grade that is also well suited to graphene derivation. Lanka Graphite will commence production at its granted tenements with the intention to supply nearby Asian end user companies particularly focused on new technology graphene applications. The collaboration with G3 advances Lanka’s corporate strategy to be a key distributor of high quality Graphene products in Australia and New Zealand. Lanka Graphite maintains one of the largest portfolio of identified high-grade vein graphite Exploration Licenses in Sri Lanka. At many of the EL’s vein graphite outcrops at surface or has been historically mined at shallow depths.

Justyn Stedwell Company Secretary

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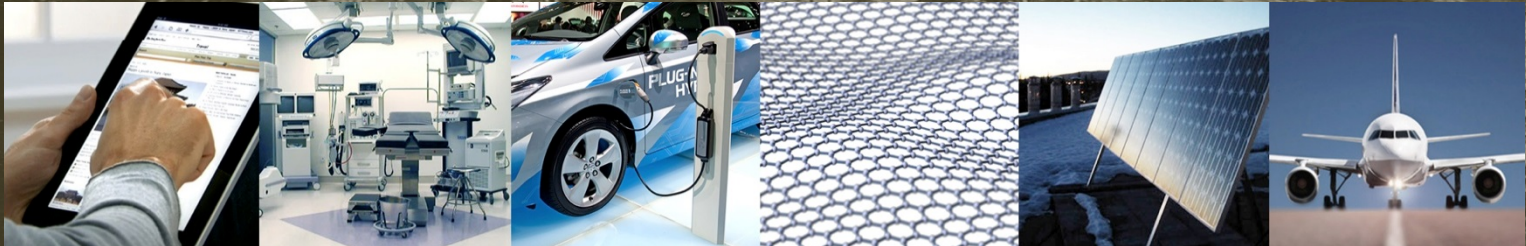
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LANKA GRAPHITE LIMITED

THE NEW BLACK GOLD

Corporate Presentation
November 2017



Lanka Graphite Story



Lanka Graphite is an Australian-based Graphite Exploration Company focused on exploring high purity vein Graphite in Sri Lanka. To date Lanka Graphite holds 438 km² of granted exploration licenses.

Our vision and goals

- Define and develop long-life, high purity vein graphite deposits
- Combine high purity Graphite with emerging Graphene technology
- Supply premium specification graphite products for high value end users
- Collaborate with Global graphene research hubs to develop economic graphene production and applications IP
- Become key global supplier to high tech industry leaders

World's largest vein graphite tenement holder

- 12 Granted Exploration License in Central & Southern Sri Lanka
- 3 ports within 100km of all LGR tenements- including Colombo Port (the only deep sea port in South Asia)
- Planned production commencing Q1 2018 ramping to 1000t annual rate by end of calendar 18

Graphite

High levels of Public and Private investment in R&D around the globe is resulting in the rapid development of lower cost refining processes of natural graphite and new applications for graphite and its derivative graphene.

So strategic and economically important are these developments the USA has identified graphite as a “**Supply-Critical Mineral**” and EU as a “**Strategic Mineral**”.

Natural graphite feed stock of high purity is critical *to both cost and application technologies*.



Three discrete commercial types

- Vein/Lump Graphite (SL only) - Purity - 95% to 99% (<1% of world's output)
- Flake Graphite - Purity - 85% to 95% (49% of world's output)
- Amorphous Graphite - Purity - 70% to 80% (50% of world's output)

Graphite Applications and Demand

Batteries

- Lithium-ion batteries require graphite electrodes that are natural flake graphite and vein graphite.
- Batteries require 10 to 30 x more graphite than lithium.
- Estimated demand will increase by 30-40% annually (Hybrid and electric cars, electronics, etc)

Fuel cells

- While batteries store energy for subsequent use, fuel cells are able to generate electricity through chemical reactions
- Produce little or no waste products
- No moving parts, long lasting, low maintenance and reliable
- Require around 40-50kg of Graphite per vehicle

Lubricants

- High purity and fine graphite used in lubricants to withstand extreme pressures and high temperatures. (used in high temperature gearing machinery)

Nuclear power

- Traditionally nuclear reactors used graphite as their main component as a moderator in nuclear control rods.
- Pebble Bed Reactor is a graphite-moderated, helium gas cooled Generation IV nuclear reactor
- Passively safer and reactor design to handle higher temperatures and survive accident scenario

Synthetic vs Natural Graphite into Graphene

EARLY RESEARCH STAGE (Synthetic Graphite)

- Synthetic graphite is commonly used to produce Graphene because of its consistent high purity however it is up to **15 TIMES** the cost of using natural graphite.
- Cost \$20,000 - \$160,000/t
- For producers, it is prohibitively expensive to manufacture Synthetic Graphene capable of being economically scaled for new application technologies.

CURRENT RESEARCH STAGE (Natural Graphite)

- In recent years, researchers have developed methods of producing Graphene from natural flake Graphite which is much more cost effective.
- Cost \$1,600 - \$5,000/t
- The importance of producing Graphene from natural graphite has sparked the European Commission to **invest €1 billion** to fund a decade of research and development by leading research institutions.

Sri Lankan Vein Graphite

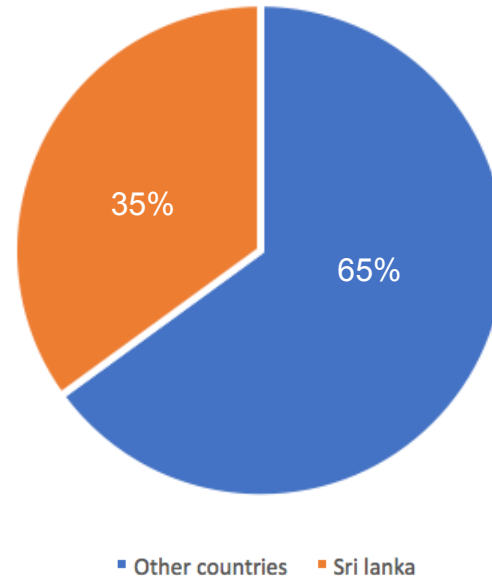


- Vein Graphite also known as lump graphite appears as needle-like crystalline aggregates
- Sri Lanka is the only country in the world to currently commercially mine vein graphite
- Originates from crude oil deposits that through time, temperature and pressure is then converted to graphite
- Graphite thickness veins range from few centimetres to tens of metres wide with length up to hundreds of metres long
- High level of crystalline flawlessness of vein graphite offers superior performance in high tech applications that require greater thermal and electrical conductivity

Sri Lankan Graphite History

- 1675 was the year of first discovered the existence of graphite industry recorded in Sri Lanka.
- The peak of Sri Lanka graphite mining dating back into 1800s.
- During WW1, 35% of world's graphite consumption in 1916 was exported from Sri Lanka to **Great Britain** and **USA** for **crucible industry**

Graphite Production



Potential of Graphite Mining in Sri Lanka

- High Grade Graphite with Purity >97% and exceeding 99% and size (lump to fines)
- Low extraction costs
- High purity lowers further processing requirements and consequently cost .
- Diverse application for end users
- High level of demand
- Low Export Duty – 5%
- Relatively under exploited industry

Large areas of deeper reserves in Sri Lanka have not been explored

Our Graphite Sample



Graphite Powder



Graphite Chips



Graphite Lumps

Our Metallurgical Results

- Premium battery grade graphite concentrates assaying **99.90 %** and **99.97 %** carbon were produced through the simple grind and flotation process from rock sample and powder sample, respectively.
- Both concentrates can be processed further through low-temperature thermal purification process for **nuclear grade graphite**.

Test	Rock 1	Powder 1
Sample	-3.35 mm Rock	As Received Powder
Carbon Recovery	89.4 %	96.2 %
Concentrate Grade	99.90 % carbon	99.97 % carbon
Screened Concentrate	Distribution %	Distribution %
+300 μm	0.05	0.07
+180 μm , -300 μm	0.60	3.01
+150 μm , -180 μm	1.00	3.65
+106 μm , -150 μm	5.36	13.58
+75 μm , -106 μm	12.61	15.17
-75 μm	80.38	64.52

Graphene Research & Collaboration

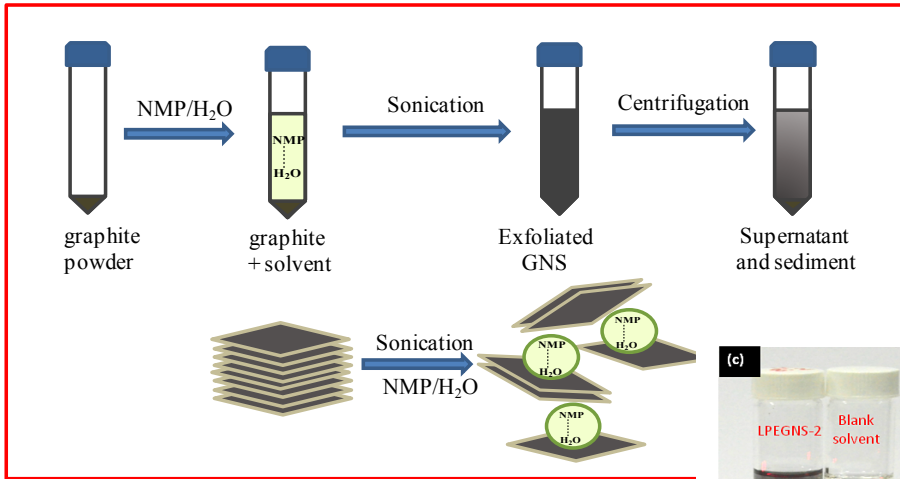


- Collaboration with National Taiwan University (NTUST) successfully developed low cost breakthrough in Graphene production
- Liquid Phase Exfoliation (LPE) technique produced high quality Graphene with consistent reproducible results of yield up to 100%
- National Taiwan University (NTUST) Professor Wei-Hung Chiang, “High purity vein graphite samples were the key element in producing high quality Graphene”
- Graphene produced is suitable for electrical devices, energy storage, thermal management, and battery anodes
- Lanka Graphite is currently searching for industry & research collaboration partners focusing on graphene enhanced end user application products

Graphene Research

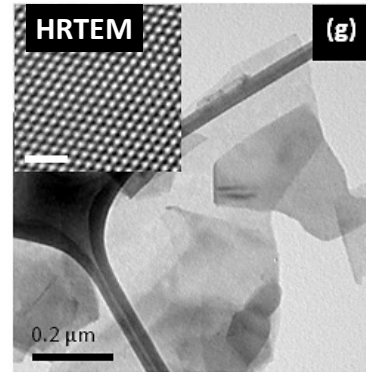
High yield GNS production by water-assisted liquid exfoliation of graphite

Kausik et al., Carbon 2016, 105, 551



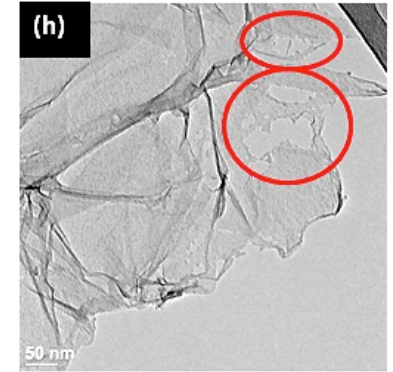
Morphology study using TEM observation

GNS



- High crystalline
- Straight edge

RGO



- High defect density
- Hole defect (reduce electrical property)

Graphene Research - Future

The only certainty is the more we investigate graphene, the more novel applications and improvements to existing technology we will discover.

It is obvious that we are only at the cusp of this journey of discovery. It is becoming increasingly clear that this graphite revolution will ultimately transform many areas of science and industry beyond our current expectations.

Lanka Graphite is proud and honoured to be a part of this exciting journey.

Corporate Social Responsibility

Developing economic and social benefit over time at Sri Lanka



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